CLAIMS

What is claimed is:

1. A window ball grid array (WBGA) semiconductor package, comprising:

a substrate having an upper surface and an opposite lower surface and having an opening formed through the same;

at least one chip mounted on the upper surface and over the opening of the substrate via an adhesive, and electrically connected to the lower surface of the substrate via a plurality of bonding wires going through the opening, with gaps, not applied with the adhesive, being formed between the chip and the substrate;

a first molded encapsulation body made of a resin material and formed on the upper and lower surfaces of the substrate for encapsulating the chip and the bonding wires, wherein the gaps between the chip and the substrate allow the resin material to pass therethrough to fill the opening of the substrate and the gaps;

a second non-molded encapsulation body for covering the part of the first encapsulation body on the lower surface of the substrate; and

a plurality of solder balls bonded to area free of the second encapsulation body on the lower surface of the substrate and exposed outside.

2. The semiconductor package of claim 1, wherein the second encapsulation body is dispensed on the lower surface of the substrate.
3. The semiconductor package of claim 1, wherein the second encapsulation body is printed on the lower surface of the substrate.
4. The semiconductor package of claim 1, wherein the chip has an active surface and an opposite inactive surface, and the active surface faces the opening and is connected with the bonding wires, allowing the active surface to be entirely encapsulated by the adhesive and the first encapsulation body.
5. The semiconductor package of claim 4, wherein the inactive surface of the chip is exposed to outside of the first encapsulation body.

6. The semiconductor package of claim 1, wherein the opening is of a rectangular shape having two opposite longer sides and two opposite shorter sides.
7. The semiconductor package of claim 6, wherein the gaps between the chip and the substrate are located along the two shorter sides of the opening.
8. The semiconductor package of claim 1, wherein the gaps have a height equal to a thickness of the adhesive which is predetermined to allow particles of the resin material to pass through the gaps.
9. The semiconductor package of claim 7, wherein the gaps have a height equal to a thickness of the adhesive which is predetermined to allow particles of the resin material to pass through the gaps.
10. A method for fabricating a window ball grid array (WBGA) semiconductor package, comprising the steps of:

preparing a substrate plate integrally formed of a plurality of substrates each of which has an upper surface and an opposite lower surface and has an opening formed through the same;

mounting at least one chip on the upper surface and over the opening of each of the substrates via an adhesive, with gaps, not applied with the adhesive, being formed between the chips and the corresponding substrates;

forming a plurality of bonding wires through the opening of each of the substrates for electrically connecting the chip to the lower surface of the corresponding substrate;

attaching a spacer having a plurality of through holes to the lower surfaces of the substrates, wherein each of the through holes corresponds to and is larger than the opening of each of the substrates, and the spacer has a thickness larger than a height of wire loops of the bonding wires protruding from the lower surfaces of the substrates so as to allow the bonding wires bonded to each of the chips to be received in the corresponding through hole of the spacer and the opening of the

corresponding substrate;

performing a molding process to form a first encapsulation body on upper and lower surfaces of the substrates by a resin material that is injected over the upper surfaces of the substrates to encapsulate the chips and flows through the gaps between the chips and the corresponding substrates to fill the openings of the substrates, the through holes of the spacer, and the gaps and to encapsulate the bonding wires;

removing the spacer from the substrates, such that the first encapsulation body formed on the substrates is exposed;

forming a second non-molded encapsulation body to cover the part of the first encapsulation body on the lower surface of each of the substrates;

bonding a plurality of solder balls to area free of the second encapsulation body on the lower surface of each of the substrates; and

cutting the part of the first encapsulation body on the upper surfaces of the substrates and the substrate plate to separate apart the integrally formed substrates and form a plurality of individual semiconductor packages each having a singulated substrate.

11. The method of claim 10, wherein the second encapsulation body is formed on the lower surface of the substrate by a dispensing process.

12. The method of claim 10, wherein the second encapsulation body is formed on the lower surface of the substrate by a printing process.

13. The method of claim 10, wherein the chip has an active surface and an opposite inactive surface, and the active surface faces the opening and is connected with the bonding wires, allowing the active surface to be entirely encapsulated by the adhesive and the first encapsulation body.

14. The method of claim 13, wherein the inactive surface of the chip is exposed to outside of the first encapsulation body.

15. The method of claim 11, wherein the opening is of a rectangular shape having two opposite longer sides and two opposite shorter sides.

16. The method of claim 15, wherein the gaps between the chip and the substrate are located along the two shorter sides of the opening.

17. The method of claim 10, wherein the gaps have a height equal to a thickness of the adhesive which is predetermined to allow particles of the resin material to pass through the gaps.

18. The method of claim 16, wherein the gaps have a height equal to a thickness of the adhesive which is predetermined to allow particles of the resin material to pass through the gaps.

19. The method of claim 10, wherein the spacer is made of a rigid material.